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enal tree somehow conditioned upon and varying with a phenomenal brain-event. The lazy phenomenalism which is so popular at present is content merely to register this surprising fact. In reality it is a datum for metaphysics, an *explicandum,* and the test of the soundness of any metaphysical theory is its ability to explain it. The impotence of realism shows itself nowhere more clearly than in its total inability to do this. And no wonder; for, make the body a reality external to the mind, and their conjunction is bound to be an ultimate and inexplicable fact. Idealism, on the other hand, paves the way for the panpsychist explanation. To state that explanation in a word: the phenomenal relation between the extra-bodily tree *quâ* physical and the brain-event is the symbol (in mine or any consciousness) of a real relation between the thing-in-itself that appears as the tree and the tree *quâ* perception. If thinkers who at present stand helpless before the relation of mind and body, and are driven by the facts either to the denial that we ever perceive extra-bodily objects at all, or to a position which amounts to the denial that mind and body are related—if these thinkers would devote a little more attention to the panpsychist theory, I am convinced that they would find nine-tenths of their difficulties disappearing.[6]

I shall take up the question of the nature of the distinction between the physical object and our perception of it in a later instalment of this article.

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REVIEWS AND ABSTRACTS OF LITERATURE

Les Principes des Mathématiques: I. Principes de la Logique. L. COUTURAT. *Revue de Métaphysique et de Morale,* January and March, 1904. *Kant et la Mathématique moderne.* L. COUTURAT. *Bulletin de la Société française de Philosophie,* May, 1904. *Les Principes des Mathématiques d'après M. Russell.* G. MILHAUD. *Revue Philosophique,* March, 1904. *L'Objectivité intrinsèque des Mathématiques.* P. BOUTROUX. *Revue de Métaphysique et de Morale,* September, 1903.

The papers of M. Couturat summarize the main results of modern logic, defining the concepts and axioms on which exact or mathematical reasoning is based. The general position is that of Mr. Russell's 'Principles of Mathematics,' though the exposition is much clearer than that of Mr. Russell's. This criticism does not go into details, but considers only one or two of M. Couturat's positions, in connection with those of MM. Boutroux and Milhaud. M. Couturat, like Mr. Russell, considers logic and mathematics to be fused, if not identified. This fusion occurred in the second half of the nineteenth century, when logicians expressed the syllogism in symbolic form, thus showing that logic is part of mathematics, and when mathematicians, defining their own concepts and axioms, discovered that mathematics is only one kind of exact reasoning among other possible kinds, *i. e.*, is a part of logic. This fusion seems to be one of the most hopeful signs of the times, suggesting as it does that 'quantitative' reasoning has no monopoly of exactness or logical necessity, but that any subject, concept or principle is amenable to exact definition and reasoning, and that there is perhaps no region, even that of the infinite, which is not perfectly intelligible. The perfecting of logical method also restores to conceptual analysis the importance and fruitfulness of which Hegel's barren dialectic method succeeded in depriving it. Against the symbolism of recent logic, however, one frequently hears urged the objection that it does not give any results which the old methods could not reach. But neither does the use of number symbols give any results that we could not get by detailed counting. Symbolism is safer, as well as quicker, just because it is more abstract, as M. Couturat points out. Symbolism is simply a well-constructed highway to the goal of truth, which goal we commonly try to reach by crossing the fields; it has no pitfalls, while the journey across the fields may lead us through many sloughs of confusion, whose mire will cling to us even when we arrive at the goal. When we have learned the 'characteristica universalis' surely we shall reason more safely than now about continua, dimensions, possibilities, and all those swamps across which the high road has not yet been laid. On the other hand, we must object to M. Couturat's description of logic as a 'hypothetically necessary' system. He shares with Mr. Russell, and indeed most logicians, the view that the forms of logic are not observed and copied from the actual world, but are simply ideal constructions. Now against this view we refer to the second and third of the papers above named. M. Boutroux clearly shows, it seems to us, that the mathematical world, though an ideal one, is not a construction of ours but quite objective. And M. Milhaud shows that we should never combine the concepts and the axioms of logic as we do if it were not for the stimulus of intuition. If, now, intuition is objective does it not seem that logic is in part at least a study of the nature of the presented world? M. Couturat, in the fourth paper above named, where he argues against Kant's basing of mathematics upon intuition, does not take account, I think, of this objection. But we can not here enter upon this large metaphysical question. We can and must assert, however, that it is not right for logicians to make the above metaphysical presupposition and then go on with a clear conscience. Another presupposition which needs proof is that the propositional calculus is the fundamental part of logic. Until we have an exact and universally admitted analysis of the relations that make up the proposition—the noun-verb relation, the verb-object relation, etc.—how can we decide whether it is more fundamental than the relation of individual to its class? Again, we are told that the number *one* is defined, quite without a vicious circle, as that class composed of mutually identical members. But does not the concept of individual member presuppose the idea of unity? In short, the study of logic must be carried much further than it has been carried. We should analyze all the concepts and relations used in thinking. It is only natural that attention should have been centered at first upon the best polished concepts, those of mathematical reasoning. The science of logic, like that of psychology, is in its infancy. Meanwhile the great merit of writers like the above, besides their unquestioned learning and logical power, is that they have taught us the universal applicability of logic and its fundamental philosophical importance.

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[6] A good way to begin is to read Professor Royce's essay on 'Self-Consciousness, Social Consciousness, and Nature,' in the *Philosophical Review* for September and November, 1895, reprinted in his 'Studies of Good and Evil'; and Professor Stout's chapter on 'Body and Mind,' in his 'Manual of Psychology.'

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Some Observations on Visual Imagery. H. B. ALEXANDER. *Psychological Review,* July–September, 1904, pp. 319–337, Vol. XI., No. 4–5.

Dr. Alexander divides visual imagery into three grades with regard to vividness, and into two classes according to the relation of the images to volition. He says that his images are externalized, sometimes, indeed, so vividly objectified as to overlie and blot out real sensation, and to make difficult, if not impossible, the drawing of a hard and fast line between sensation and image. His images of most things are isolated and, except in his third class, are smaller than reality, though things really small, such as printed letters, are not reduced. The differences in the three classes are slight for outline, greater for definiteness, more still for substantiality, and greatest for color, luminosity and apparent size. Vividness is proportional to the amount of attention given to the image. Like many other observers, he says that his images, as a rule, are fragmentary. According to the belief of the present writer this is, however, no differentia; for images, as sensations themselves, are just as fragmentary when they are as brief.

Dr. Alexander speaks of (1) 'voluntary or memory images,' and (2) 'spontaneous and irrelevant images.' In a section on 'The Influencing of Imagery' he admits, however, that 'even in the most abjectly servile imagery there is always some spontaneity' (p. 333). In a section on 'Imagery and Ratiocination' he says he believes that visual imagery was probably the mode of thought developed in the course of evolution before the origin of language, and suggests that the visual images are 'mere residual mental organisms pursuing a natural course of degeneration' (p. 336).

Dr. Alexander begins by saying that 'theories as to imagery can not be on sure ground until we have fuller detail' (p. 319), and yet I have been able to count in the 18 pages of his article only 17 experiences that have been described in detail. One could have wished that he had given more of his experiences. As his visual images are of a vivid type, he might, I believe, have told us more about them. A collection of descriptions of his images of other sense qualities, if he has such, would be welcome.